

PATENT SPECIFICATION

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NO DRAWINGS.

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Int. Cl.:—D 06 I /C 11 d.

COMPLETE SPECIFICATION.

Hair Bleaching Composition.

We, RAYETTE-FABERGE INCORPORATED formerly Rayette Incorporated, a corporation organized and existing under the laws of the State of Minnesota, United States of America, located at 261 East 5th Street, St Paul 1, State of Minnesota, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to the bleaching of human hair and particularly to a bleaching composition especially adapted for "touch up" purposes in bleaching new hair growth of a fraction of an inch close to the scalp. To be successful, such localized bleaching must involve a minimum of overlapping of previously bleached hair, which would over-bleach and cause hair damage, and it should minimize scalp irritation from ammonia conventionally used with peroxide to effect the bleach. To be effective, the composition must remain in place at the base of the hair for the time needed for the bleach, retaining, while in place, the optimum alkalinity and moisture content needed to continue the bleaching action. To give such compositions the thickness or body needed for immobility in localized application, it has been common to add adsorbent "white henna" materials such as mixtures of magnesium carbonate and magnesium oxide or magnesium trisilicate. Such adsorbents and bleach compositions using them have a number of limitations which the present invention seeks to obviate.

The invention consists in a dry powder for admixture with hydrogen peroxide and a liquid ammonium soap to form a hair bleach of gelatinous consistency comprising a persulfate salt of a cation selected from alkali metals and ammonium, and an anhydrous alkali metal silicate, the silicate and persulfate salts being present in a weight ratio range of 1:4 to 1:7 and forming, upon wetting with both of said liquids, a gel in the pH range of from 9.3 to not more than 10.

When the dry powder of the invention is mixed with hydrogen peroxide and a liquid ammonium soap and the mixture gelled to form a bleaching composition we have found that it possesses unexpected properties far superior to other compositions for the purpose, including those employing adsorbents and the same per-acid salts. The composition maintains a stable alkalinity at the optimum pH value; it retains its moisture content over long bleach processing times and it can readily be shampooed out of the hair with no dry powdery residue. The composition affords a wide range of selectivity of bleaching strengths by enabling the operator to mix the hydrogen peroxide with a unit quantity of liquid ammonium soap and selected different quantities of dry powder mix comprising the silicate and the per-acid salt, to form a range of bleaching compositions of different graded strengths but in which the pH value remains within a desired narrow range.

A hair bleach produced from the dry powder of the invention preferably comprises:

hydrogen peroxide
aqueous ammonium hydroxide
fatty acid

solvents (water which may contain alcohol)
alkali metal or ammonium persulphate
anhydrous water-dispersible alkali metal
silicate

- 5 The composition may also contain wetting
agents, dyes and perfumes, usually employed
in hair treating compositions.

The fatty acid and ammonium hydroxide
form an ammonium soap which is liquid
at room temperature with an alkaline pH.
10 Oleic acid is preferred, but others, includ-
ing myristic, palmitic, and lauric, may also
be used, as may stearic acid, although a
stearic soap generally requires additional
15 solvent to lower the viscosity. The soap
contributes alkalinity, aids in achieving the
desired consistency of the gel, and functions
as a shampoo in the removal of the bleach.
We have found an alkaline soap liquid hav-
20 ing a pH of 9.3—9.6 to be satisfactory for
admixture with the solids mixture. Further,
a stoichiometric excess of ammonium
hydroxide to fatty acid is used. A mole
ratio of 1.25—1.6 moles of hydroxide per
25 mole of fatty acid is the preferred range.

Ammonium or potassium persulphate is
preferably used, and superior results are
achieved by a mixture of both. The com-
position should provide persulfate, am-
monium and potassium ions in solution, for
30 which purpose, of course, one salt need not
be a persulfate but can be a water-soluble
sulfate or a salt of another acid. We have
obtained good results with a mixture of
35 potassium persulfate and diammonium phos-
phate. In our preferred composition, we
use approximately three parts by weight of
potassium persulfate to one of ammonium
persulfate. The salts aid in the bleaching
40 by their oxidizing action, thus reducing the
quantity of hydrogen peroxide required; they
act with the silicate and the soap not only
to buffer the bleach to an alkalinity within
the desired pH range (which persists while
45 the bleach acts on the hair despite volatility
of other alkaline components) but also to
achieve a gel of desired consistency which
lasts throughout the bleaching operation.
The gel may have a broad range of viscosity.
50 However, it must not be too low, otherwise
it will flow throughout the hair. Neither
must it be so thick as to interfere with its
uniform distribution on the hair contiguous
to the scalp. Desirably, the composition
55 possesses the property of reduced viscosity
when subjected to stress and a firming when
the stress is removed. In this way the
bleaching composition flows onto the hair
during application and then sets to a more
60 rigid form so as to prevent flow to other
areas of the hair.

The anhydrous water-dispersible, alkali
metal silicate forms, with the other com-
ponents, a gel of desired consistency and

acts with the per-salts and soaps to buffer 65
the bleach to the desired range of alkalinity,
despite varying proportions of solids to
liquids, as we shall refer to, and which
alkalinity persists stably during the bleach.
70 We prefer sodium metasilicate as it is readily
dispersible as a finely-divided powder, and
is highly alkaline. The sodium metasilicate
aids in imparting the required alkalinity with
a lower pH value than if ammonium
hydroxide alone were used. 75

The liquid and dry wetting agents which
may be employed aid in the formation of
a smooth gel quickly and for this use must
be stable and compatible to alkalinity and
oxidizing agents. Dry wetting agents may
80 be for example Aerosol OS (isopropyl
naphthalene sodium sulfonate), Aerosol OTB
(dioctyl ester of sodium sulfosuccinic acid),
Alfracal (alkyl aryl sodium sulfonate) and
Dupanol ME dry (sodium lauryl sulfate). 85
The liquid wetting agents, also stable in the
presence of alkaline and oxidizing agents,
may be for example Igepal CO-430 (nonyl-
phenoxy-poly-ethyleneoxy-ethanol) and Brij
30 (a polyoxyethylene lauryl ether). 90

Our composition preferably has a pH
within the range of 9.3 to 9.7, and may be
up to 9.8, but not more than 10.

Although there are specific relative
amounts in which these components are pre- 95
ferably employed for best results, a feature
of the invention is that the liquid com-
ponents, in certain proportions, separately
packaged, may be admixed for use in a
wide range of ratios of total packaged liquids 100
to total packaged solids to afford a range
of bleaching actions while providing the
desired gel consistency and the desired pH
within a limited range. The selectability is
105 illustrated by the following examples:

Example 1

The following liquids and the following
solids were separately mixed and separately
packaged:

Liquids	By Weight	
Oleic acid	22%	110
Ammonium hydroxide (29% aq. solution)	7%	
*Wetting agent	40%	
Alcohol	13%	115
Dyes and chelating agents	1%	
Water	17%	
	100%	

*The wetting agents used in this composi-
tion are nonylphenoxy poly (ethyleneoxy) 120
ethanol, ammonium oleate or polyoxy-
ethylene-4-lauryl ether or a combination of
these.

The chelating agent used was N, N-di (2-
hydroxyethyl) glycine mono-sodium salt. 125

<i>Solids</i>	<i>By Weight</i>
Ammonium persulphate	21%
Potassium persulphate	63%
Sodium metasilicate	15%
5 Dry wetting agent (sodium lauryl- sulphate)	1%
	100%

10 For a single application, 4 ounces of 20-
volume hydrogen peroxide were mixed with
12 grams of solids and the mixture shaken.
Two ounces of the liquids were then added
to form a creamy paste ready for application
to the hair. The composition had a pH
of 9.3.

15 *Example 2*

The same mixture was used as in Example
1 except that twice as much of the dry
solids, 24 grams, were added to the same
quantity, 4 ounces, of hydrogen peroxide
20 and the same quantity, 2 ounces, of liquids.
A creamy gel of substantially the same
physical characteristics as in Example 1
was obtained and with a pH of 9.5, which
produced a lighter and somewhat faster
25 bleach than the composition of Example 1.

Example 3

The same mixtures as in Example 1 again
were employed except for the use of 3 times
the solids, or 36 grams. Again, the con-
sistency of the gel was about the same, the
30 pH had not risen significantly, being 9.6,
still within the range, but now the mixture
bleached substantially lighter and faster.

35 In these examples the sodium metasilicate
is present as 15% by weight of the dry
solids and the per-salts total 84% so that
the ratio of the gel forming silicate to the
per-salts is approximately 1 to 6. We have
found that this ratio should be kept within
40 the range from 1 to 4 to 1 to 7.

In use, we have found that the composi-
tion has a creamy gel consistency which is
very well adapted for localized application
to the scalp portions of the hair strands in

45 retouching, although, of course, the com-
position may be used for a total bleach. It
affords a fast bleaching action with the paste
retaining its moisture consistency and
alkalinity until the bleach is finished, when
50 it may readily be shampooed away by work-
ing up suds simply by the addition of water.
When used locally at the scalp or root por-
tion of the hair, it is of a consistency to
facilitate application only to the new hair
55 growth without overlapping previously
bleached hair; and the peroxide is held well
in the mix without running on the scalp as
with prior similar compositions.

WHAT WE CLAIM IS:—

1. A dry powder for admixture with 60
hydrogen peroxide and a liquid ammonium
soap to form a hair bleach of gelatinous con-
sistency comprising a persulfate salt of a
cation selected from alkali metals and
ammonium, and or anhydrous alkali metal
65 silicate, the silicate and persulfate salts be-
ing present in a weight ratio range of 1:4
to 1:7 and forming, upon wetting with both
of said liquids, a gel in the pH range of
from 9.3 to not more than 10. 70

2. A dry powder as claimed in claim 1
comprising approximately three parts by
weight of potassium persulfate to one part
of ammonium persulfate and an anhydrous
75 alkali metal silicate, the silicate and per-
sulfate salt mixture being present in a weight
ratio range of from 1:4 to 1:7 and form-
ing, upon wetting with both of said liquids,
a gel in the pH range of from 9.3 to not
80 more than 10.

3. A dry powder according to claim 1
for admixture with hydrogen peroxide and
a liquid ammonium soap to form a hair
bleach of gelatinous consistency substantially
85 as hereinbefore described with reference to
the Examples.

MARKS & CLERK,
Chartered Patent Agents,
Agents for the Applicants.



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RAPPORT DE RECHERCHE
PRÉLIMINAIRE

établi sur la base des dernières revendications
déposées avant le commencement de la recherche

N° d'enregistrement
national

FA 623613
FR 0208855

DOCUMENTS CONSIDÉRÉS COMME PERTINENTS		Revendication(s) concernée(s)	Classement attribué à l'invention par l'INPI
Catégorie	Citation du document avec indication, en cas de besoin, des parties pertinentes		
A	EP 0 808 895 A (IMAGINATIVE RES ASS) 26 novembre 1997 (1997-11-26) * revendication 1; exemple 85 *		A61K7/135
A	WO 99 62469 A (NEUHAUS WINIFRIED ; HENKEL KGAA (DE); HOFFKES HORST (DE)) 9 décembre 1999 (1999-12-09) * tableau 1 *		
A	GB 1 083 007 A (RAYETTE FABERGE) 13 septembre 1967 (1967-09-13) * revendication 1; exemple 1 *		
A	US 5 888 484 A (BALZER WOLFGANG R ET AL) 30 mars 1999 (1999-03-30) * exemple 1 *		
A	US 5 437 860 A (JARVIS DAVID P ET AL) 1 août 1995 (1995-08-01) * exemple 2 *		
			DOMAINES TECHNIQUES RECHERCHÉS (Int.Cl.7)
			A61Q A61K
Date d'achèvement de la recherche		Examineur	
25 mars 2003		Stienon, P	
CATÉGORIE DES DOCUMENTS CITÉS			
X : particulièrement pertinent à lui seul Y : particulièrement pertinent en combinaison avec un autre document de la même catégorie A : arrière-plan technologique O : divulgation non-écrite P : document intercalaire			
T : théorie ou principe à la base de l'invention E : document de brevet bénéficiant d'une date antérieure à la date de dépôt et qui n'a été publié qu'à cette date de dépôt ou qu'à une date postérieure. D : cité dans la demande L : cité pour d'autres raisons & : membre de la même famille, document correspondant			

**ANNEXE AU RAPPORT DE RECHERCHE PRÉLIMINAIRE
RELATIF A LA DEMANDE DE BREVET FRANÇAIS NO. FR 0208855 FA 623613**

La présente annexe indique les membres de la famille de brevets relatifs aux documents brevets cités dans le rapport de recherche préliminaire visé ci-dessus.
Les dits membres sont contenus au fichier informatique de l'Office européen des brevets à la date du 25-03-2003
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Document brevet cité au rapport de recherche		Date de publication	Membre(s) de la famille de brevet(s)	Date de publication
EP 0808895	A	26-11-1997	US 6054425 A	25-04-2000
			AU 718429 B2	13-04-2000
			AU 2220097 A	27-11-1997
			CA 2205624 A1	20-11-1997
			EP 0808895 A2	26-11-1997
			JP 10046200 A	17-02-1998
			US 6352964 B1	05-03-2002
WO 9962469	A	09-12-1999	DE 19824685 A1	09-12-1999
			AU 4366799 A	20-12-1999
			WO 9962469 A1	09-12-1999
			EP 1082088 A1	14-03-2001
GB 1083007	A	13-09-1967	AUCUN	
US 5888484	A	30-03-1999	DE 19545853 A1	12-06-1997
			BR 9605900 A	18-08-1998
			DE 59609648 D1	17-10-2002
			EP 0778020 A1	11-06-1997
			ES 2106701 T1	16-11-1997
			JP 9157142 A	17-06-1997
US 5437860	A	01-08-1995	AU 7061394 A	17-01-1995
			BR 9406954 A	20-08-1996
			CA 2165952 A1	05-01-1995
			EP 0705094 A1	10-04-1996
			OA 10203 A	18-12-1996
			WO 9500107 A1	05-01-1995
			ZA 9404471 A	14-02-1995

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Pour tout renseignement concernant cette annexe : voir Journal Officiel de l'Office européen des brevets, No.12/82